

AMENDMENTS TO THE CLAIMS:

The following listing of claims supersedes all prior versions and listings of claims in this application:

1-22. (Cancelled)

23. (Previously Presented) Apparatus for sharing data over a network having a plurality of network-connected terminals, each terminal comprising

a visual display;

a processor;

storage; and

memory;

wherein said memory in each terminal includes:

a first data object that contains data and dynamic elements comprising attributes and methods, said first data object being duplicated to each of said other network-connected terminals, and a plurality of second data objects, each of which contains data and dynamic elements comprising attributes and methods, each of which second data objects is a duplicate of a data object on another terminal, such that there exists within the network a plurality of sets of duplicated data objects; and

computer program instructions for normal operations comprising:

maintaining an environment for a networked game and displaying said environment on said visual display;

for at least one of said data objects in said memory, generating an entity using said methods and attributes in said data object and displaying it in said environment according to said data in said data object;

periodically providing over said network an update of the data contained in said first data object;

updating the data contained in said second objects in response to receiving updates over said network, wherein for each of said updates a portion of the data in one of said second objects is replaced with data contained in the update without changing the dynamic elements in said second object; and

for each set of duplicated data objects;

establishing one of said data objects as a master data object, wherein said master data object is responsible for maintaining consistency between the data in the data objects in said set, and

when the terminal that maintains said master data object becomes unavailable, determining which of said data objects in the set should be master data object and establishing said data object as master data object.

24. (Previously Presented) Apparatus according to claim 23, wherein said instructions to maintain data consistency between duplicated objects monitor CPU usage and network bandwidth utilization.

25. (Previously Presented) Apparatus according to claim 24, wherein a terminal becomes unavailable when its CPU usage exceeds a threshold.

26. (Previously Presented) Apparatus according to claim 24, wherein a terminal becomes unavailable when its bandwidth utilization exceeds a threshold.

27. (Previously Presented) Apparatus according to claim 23, wherein a terminal becomes unavailable when it is switched off.

28. (Previously Presented) Apparatus according to claim 23, wherein a terminal becomes unavailable when its connection to the network is lost.

29. (Previously Presented) A method of accessing data over a network of terminals, wherein each of said terminals:

maintains a first data object that contains data and dynamic elements comprising attributes and methods, said first data object being duplicated over the network to each of said other terminals, and a plurality of second data objects, each of which contains data and dynamic elements comprising attributes and methods, and each of which second data objects is a duplicate of a data object on another terminal, such that there exists within the network a plurality of sets of duplicated data objects,

maintains an environment for a networked game and displays it on said visual display,

for at least one of said data objects in said memory, generates an entity using said methods and attributes in said data object and displays it in said environment according to said data in said data object,

periodically provides over said network an update of the data contained in said first data object, and

updates the data contained in said second objects in response to receiving updates over said network, wherein for each of said updates a portion of the data in one of said second objects is replaced with data contained in the update without changing the dynamic elements in said second object;

said method comprising:

for each set of duplicated data objects:

establishing one of said data objects as a master data object, wherein said master data object maintains consistency between the data in the data objects in said set; and

when the terminal that maintains said master data object becomes unavailable, determining which of said data objects in the set should be master data object and establishing said data object as master data object.

30. (Previously Presented) A method according to claim 29, wherein each of said terminals monitors its own CPU usage and network bandwidth utilization.

31. (Previously Presented) A method according to claim 30, wherein a terminal becomes unavailable when its CPU usage exceeds a threshold.

32. (Previously Presented) A method according to claim 30, wherein a terminal becomes unavailable when its bandwidth utilization exceeds a threshold.

33. (Previously Presented) A method according to claim 29, wherein a terminal becomes unavailable when it is switched off.

34. (Previously Presented) A method according to claim 29, wherein a terminal becomes unavailable when its connection to the network is lost.

35. (Currently Amended) A terminal for sharing data over a network having a plurality of network-connected terminals, comprising
a visual display;
a processor;
storage; and
memory;
wherein said memory includes:

a first data object that contains data and dynamic elements comprising attributes and methods, said first data object being duplicated to each of said other network-connected terminals, and a plurality of second data objects, each of which contains data and dynamic elements comprising attributes and methods, and each of which second data objects is a duplicate of a data object on another terminal, such that there exists within the network a plurality of sets of duplicated data objects; and

computer program instructions for normal operations comprising:

maintaining an environment for a networked game and displaying said environment on said visual display;

for at least one of said data objects in said memory, generating an entity using said methods and attributes in said data object and displaying it in said environment according to said data in said data object;

periodically providing over said network an update of the data contained in said first data object;

updating the data contained in said second objects in response to receiving updates over said network, wherein for each of said updates a portion of the data in one of said second objects is replaced with data contained in the update without changing the dynamic elements in said second object; and

for each set of duplicated data objects:

storing information as to which of said data objects is a master data object that is responsible for maintaining consistency between the data in the data objects in said set, wherein any of said duplicated data objects in the set may be a master data object, and

when the terminal that maintains said master data object becomes unavailable, determining which of said data objects in the set should be master data object and establishing said data object as master data object.

36. (Currently Amended) A non-transitory computer-readable storage medium having computer-readable instructions executable by a computer during normal ongoing operations such that, when executing said instructions, a computer will:

maintain a first data object in memory that is duplicated to computers connected over a network, and maintain a plurality of second data objects in memory, each of which is a duplicate of a data object on another terminal, such that there exists within the network a set of duplicated data objects, each of said data objects containing data and dynamic elements comprising attributes and methods;

maintain an environment for a networked game and displays it on said visual display,

for at least one of said data objects in said memory, generate an entity using said methods and attributes in said data object and displays it in said environment according to said data in said data object,

periodically provide over said network an update of the data contained in said data object;

update the data contained in said second objects in response to receiving updates over said network, wherein for each of said updates a portion of the data in one of said second objects is replaced with data contained in the update without changing the dynamic elements in said second object; and

for each set of duplicated data objects:

store information as to which of said data objects is a master data object that is responsible for maintaining consistency between the data in the data objects in said set, wherein any of said duplicated data objects in the set may be a master data object, and

when the terminal that maintains said master data object becomes unavailable, determine which of said data objects in the set should be master data object and establish said data object as master data object wherein at least one of the master data

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objects is maintained by a different terminal from that maintaining at least one of the other master data objects.

37. (Currently Amended) A non-transitory computer-readable storage medium according to claim 36, wherein the role of master data object is transferred to a different computer when the computer that maintains said master data object becomes unavailable.

38. (Currently Amended) A non-transitory computer-readable storage medium according to claim 36, wherein each of said computers monitors its own CPU usage and network bandwidth utilization.

39. (Currently Amended) A non-transitory computer-readable storage medium according to claim 38, wherein a computer becomes unavailable when its CPU usage exceeds a threshold.

40. (Currently Amended) A non-transitory computer-readable storage medium according to claim 38, wherein a computer becomes unavailable when its bandwidth utilization exceeds a threshold.

41. (Currently Amended) A non-transitory computer-readable storage medium according to claim 37, wherein a computer becomes unavailable when it is switched off.

42. (Currently Amended) A non-transitory computer-readable storage medium according to claim 37, wherein a computer becomes unavailable when its connection to the network is lost.